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ABSTRACT

This study investigates whether second- and third-grade students' reading progress improves when parents are provided with feedback about students' reading progress while they concurrently participate in a parent-child reading program. Over a 15-week period, objective reading progress feedback was provided to parents on a biweekly basis. The 61 student-parent dyads were randomly assigned to 4 groups: (1) parent involvement with parent feedback (15 pairs); (2) parent involvement only (15 pairs); (3) parent reading feedback only (16 pairs); and (4) control (15 pairs). The parent-child reading program consisted of a structured, supportive reading technique called Paired Reading. Results indicate that parent participation in a structured at-home reading program did not influence student reading achievement. In addition, providing parents with objective feedback served to communicate with parents, but this communication did not translate into reading gains. The attitudes of students and parents toward reading were generally positive, yet remained unchanged as a result of participating in different treatment conditions. (Contains 9 tables and 44 references.) (Author/SLD)

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DOES PARENT INVOLVEMENT AND PARENT FEEDBACK ABOUT READING PROGRESS INFLUENCE STUDENTS' READING PROGRESS?

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Abstract

This study investigated whether second and third grade students' reading progress improved when parents were provided with feedback about students' reading progress while they concurrently participated in a parent-child reading program. Over a fifteen week period, objective reading progress feedback was provided to parents on a biweekly basis. The parent-child reading program consisted of a structured, supportive reading technique called Paired Reading. Results indicated that parent participation in a structured at-home reading program did not influence student reading achievement. Additionally, providing parents with objective feedback served to communicate with parents, but this communication did not translate into reading gains. Further, the attitudes of students and parents toward reading were generally positive, yet remained unchanged as a result of participating in different treatment conditions.

Does Parent Involvement and Parent Feedback About Reading Progress Influence Students' Reading Progress?

The notion of parents and teachers working together as partners in the education of our students has become a reality. Parent involvement is a topic that has attained renewed interest in many journals within the fields of psychology and education. While parent involvement can take on a variety of forms and has been differentially defined (Chavkin & Williams, 1985; Epstein, 1987a, 1987b, 1992), the call for parents to become involved is especially evident in the area of reading instruction. Teachers indicate that their most frequently used and most satisfying form of parent involvement includes sending reading activities home, a practice that is strongly supported by school principals (Becker & Epstein, 1982). Additionally, parents report that teachers solicit their assistance most often for reading-related activities (Epstein, 1986).

Teachers' practices and principals' support of parent involvement in reading is consonant with the findings advanced by the Commission on Reading that "parents play roles of inestimable importance in laying the foundation for learning to read" (Anderson, Hiebert, Scott, & Wilkinson, 1985, p. 27). Parent involvement, however, is not only important for "laying the foundation for learning to read", but for maintaining that foundation as well. This foundation can be strengthened when parents are involved in systematic ways. Students undoubtedly achieve at higher levels when their parents are involved in the reading process at home (Becher, 1985; Duvall, Delquadri, Elliott, & Hall, 1992; Leach & Siddall, 1990; Thurston & Dasta, 1990; Tizard, Schofield, & Hewison, 1982). It would be expected, however, that parent involvement may become even more effective if there is coordinated communication between the school and home about student reading progress. Yet little is known regarding the effects of providing parents with objective, on-going feedback about their children's reading progress. Therefore, the purpose of this study was to determine if students' reading progress increased when parents were systematically involved in reading, and were provided feedback regarding their children's reading progress.

Parent Involvement in the Reading Process

Teachers have typically involved parents in the reading process in several ways. Vukelich (1984) claimed that the most frequently cited suggestions for parent involvement include: reading to your child; being a good literate model; providing books and magazines for your child; and building a reading atmosphere at home (i.e.,

place and time for reading). Students are more likely to have positive attitudes towards reading and higher reading achievement when their parents listen to or read to them (Hewison, & Tizard, 1980; Robson & Whitley, 1989). Nevertheless, Becher (1985) noted that parent involvement can be accentuated when teachers provide parents with specific recommendations regarding how parents can help at home. Studies investigating the effects of training parents formally in the utilization of specific techniques suggest that parental involvement can positively influence reading achievement, with greater gains in achievement associated with programs that had a structured, instructional component (Barrett, 1986; Duvall, et al..1992; Leach & Siddall, 1990; Thurston & Dasta, 1990).

Regardless of the degree or type of parent involvement in reading, positive results are generally evidenced (Burgess, 1982; Hickey, Imber, & Rothstein, 1979; Leach & Siddall, 1990; Siders & Sledjeski, 1978). Typically the effectiveness of parent involvement programs has been assessed by examining changes in students' and parents' attitudes, amount of time spent reading, and pretest-posttest differences on standardized, norm-referenced reading achievement tests. Such evaluations of reading programs are summative in nature, with participants being informed that either the program achieved its goals or needed to be modified. Thus, parents and students participating in these programs received little feedback regarding students' reading progress.

One way in which teachers and parents may engage in a dialogue is through the use of home-school notes. The primary purpose of this form of communication is to keep track of the number of minutes read, to keep track of the types of books read, and to assess parent and student attitudes about reading. While these home-school notes do indeed provide important anecdotal information, home-school notes that provide parents and students with feedback about actual reading progress may prove to be even more valuable.

Home-school notes have been used extensively in behavior management programs as a means for providing feedback to students and their parents (Blechman, Kotanchik, & Taylor, 1981; Budd, Leibowitz, Riner, Mindell, & Goldfarb, 1981; Lahey, Gendrich, Gendrich, Schnelle, Gant, & McNees, 1977). Blechman, Kotanchik, and Taylor (1981) found that when parents received objective feedback about their students' completion of daily seat work in the form of a "good news note", the percent of work completed increased.

Additionally, when behaviorally disordered students were provided with written feedback about their reading, their reading accuracy improved (McLaughlin, 1992). There is, however, little research about providing parents with direct and frequent feedback regarding their students' progress in reading. One excellent means of providing parents and students with on-going feedback is through the use of curriculum-based measurement.

Curriculum-Based Measurement as a Means of Providing Feedback

Curriculum-Based Measurement (CBM) is characterized by a direct assessment of individual student skills relative to the curricular materials that are being used within the classroom (Shinn, 1989). Frequent samples of student behavior are obtained and are, therefore, sensitive to changes in student progress. Data can be presented in graphic form, allowing progress towards goals to be discerned. Data collection, administration, and scoring can be facilitated by the use of computer software (Fuchs, Hamlett, & Fuchs, 1990). On-going progress monitoring systems have been associated with a weighted effect magnitude of 0.70, indicating that student achievement increases when formative evaluation procedures are employed (Fuchs & Fuchs, 1986).

CBM has been used to monitor progress in the basic skill areas of reading, spelling, math, and written expression. Typically, teachers are the primary users of the data obtained from frequent monitoring of student progress. When CBM is used to monitor progress, students achieve at higher levels and are more aware of their goals and the progress they are making (Fuchs, Butterworth, & Fuchs, 1989; Fuchs, Deno, & Mirkin, 1984). Published research, however, regarding the effects of providing parents with CBM progress feedback is limited (Marston, Diment, Allen, & Allen, 1992).

Purpose

The purpose of this study was to explore the use of CBM as a direct way of providing feedback about students' reading progress to parents who participated in a parent involvement reading program. The parent reading program employed in this study was the Paired-Reading program (Topping, 1987; Topping & Lindsay, 1992). The Paired-Reading Program is a structured program that trains parents in how they can become engaged with their children as they read aloud. While the existing research supports the notion of

parental involvement in the reading process. little is known about the effects of providing parents with feedback about their student's progress as they concurrently participate in these parent reading programs. Therefore this study addressed the following questions:

1. Does parent involvement in the reading process influence student reading progress as measured by CBM and standardized reading tests?
2. Does providing parents with feedback about student reading progress influence actual reading progress as measured by CBM and standardized reading tests?
3. Does providing parents with feedback about reading progress, while they concurrently participated in a parent involvement reading program, influence students' reading progress as measured by CBM and standardized reading tests?

Method

Subjects

Subjects consisted of all second and third grade students (N=61) from a rural school district located in the western region of New York State for whom parental permission had been obtained. Student-Parent dyads at each grade level were randomly assigned to one of four treatment conditions: Parent Involvement with Parent Reading Feedback (group 1; n= 15); Parent Involvement Only (group 2; n=15); Parent Reading Feedback Only (group 3; n=16); and Control (group 4; n=15). Two students from group 4 transferred to another district during the last few weeks of the study.

Measures

Stanford Diagnostic Reading Test (SDRT). (Pretest and Posttest). The SDRT Composite was calculated based on the average raw scores obtained on the Reading Comprehension (RC) and the Phonetic Analysis (PA) subtests from the Stanford Diagnostic Reading Test (Karlsen & Gardner, 1984). The Red Level, Form G, was administered in a pre-posttest fashion. The RC subtest is designed to assess literal and inferential comprehension through sentence and passage reading followed by multiple choice questions. The internal consistency reliability is reported to be .96 for grades three through five. The criterion-related validity with the reading tests of the Stanford Achievement Test ranges from .68 to .90 (Karlsen & Gardner, 1984).

The PA subtest is designed to measure the ability to identify relations between sounds and letters. The internal consistency of the PA is between .93 and .95 for grades three through five. The criterion-related validity of the PA with the reading tests of the Stanford Achievement Test ranged from .62 to .85 (Karlsen & Gardner, 1984).

Gates-MacGinitie Reading Test (G-M): Posttest. The reading comprehension subtest of the G-M (Level 2, Form K) was administered in a posttest fashion (MacGinitie & MacGinitie, 1989). Initial items are designed to assess literal comprehension, whereas later items assess inferential abilities. Both types of items require students to choose one of three pictures that best goes with the story. Internal reliability of the comprehension subtest, using the Kuder Richardson Formula (KR-20), is reported to be .88 to .96 for levels 2 through 10/12 (MacGinitie & MacGinitie, 1989).

Curriculum-Based Measurement (CBM-PP): Pretest and Posttest. The CBM-PP consisted of three randomly selected passages (i.e., probes) from the literature used within the second and third grade curriculum. For each grade level, two probes were selected from the middle sections of the textbook, and one probe was selected from the last section of the textbook. Probes were not selected if they were classified as poems, plays, or had too many unfamiliar words or proper nouns. Each probe was approximately 200 words in length. The reading probes were administered and scored by trained research assistants who used standardized procedures prescribed by Shinn (1989, 1993). Students read each probe for one minute. The median score of the three probes was used to represent the correct number of words read per minute (wrc). Test-retest coefficients for this type of assessment are reported to be approximately .90, with inter-rater reliability reaching beyond .95. The correlation coefficients between curriculum-based measures and standardized reading measures generally fall within the range of .70 to .95 (Marston, 1989).

Progress Monitoring: (Twice Weekly). All students had their reading progress monitored twice weekly using the computer program Monitoring Basic Skills Progress: Basic Reading (Fuchs, Hamlett, & Fuchs 1990). According to Fuchs et al. (1990), "Basic Reading is a set of standardized methods for selecting test stimuli, administering and scoring tests, summarizing the assessment information, and using the information to formulate instructional decisions in reading" (p. 2). Assessment of reading progress was accomplished using a modified cloze procedure, hereafter referred to as a "maze" procedure.

Maze is a procedure that required students to read passages in which the first sentence was intact. Thereafter, every seventh word was missing and the student was required to choose the correct response from three distractors that were provided. The distractors were not auditorally or graphically similar to the correct replacement, and they were the same length or within one letter of the correct response. The Basic Reading program contains thirty generic grade level passages of approximately 400 words in length that tell complete stories. Each story was designed to conform to the Fry readability formula for each respective grade level. Students had 2.5 minutes to read the passage at an Apple IIe computer workstation. Performance, as scored by the computer program, was indexed as the number of correct replacements. This program automatically scored and saved student performance data in individual student files. Baseline data was represented by the

last three data points collected before the start of the 15 week intervention period. Fuchs et al. (1990) indicated that the overall test-retest reliability of the maze procedure was .92 and the criterion-related validity with the Stanford Achievement Test-Reading Comprehension was .80 for nonhandicapped individuals.

Elementary Reading Attitude Survey (ERAS): (Pretest and Posttest). ERAS (McKenna & Kear, 1990) is designed to assess attitudes toward academic and recreational reading. This instrument has 39 questions which can be group administered. In response to questions asked, students were required to select one of four pictures of the cartoon character named Garfield who was depicted in poses as being very happy to very upset. Prior to the administration of this survey, the meanings of the poses were explained to the class. Internal consistency coefficients of this device were reported by its test developers as falling within the .74 to .89 range. Research on the construct validity of the academic and recreational subscales indicated that these subscales are measuring separate, but related constructs. The results of factor analyses provided evidence for a two-factor solution (McKenna & Kear, 1990).

Parent Reading Attitude and Home Literacy Environment Survey. Parental attitudes toward reading and the home literacy environment was assessed at the end of this study by a questionnaire that was sent home with the subjects. This questionnaire was developed based on examples provided by Fredericks and Taylor (1985) and was field tested in two phases to ensure the appropriateness and readability of the items as perceived by parents of pre-school and school-aged students.

Reading Progress Graph. Every other week, students in groups 1 and 3 were provided with a reading progress graph which they took home to their parents. This graph served as "feedback" to parents about their students' reading progress. During the first week of this study, a letter was distributed to the parents explaining how to interpret the reading progress feedback. Subsequent graphs were sent home each Friday during Weeks 3, 5, 7, 9, 11, 13, and 15 and returned the following Monday, signed by the parent(s).

Parent-Child Reading Booklet. For those students in groups 1 and 2, a parent-child reading booklet was distributed during the parent training sessions. This booklet contained the following: parent-child contract; recording sheets indicating the number of minutes read/day, name(s) of the book(s) read; and parent and child comment(s) about the reading experience. On a weekly basis students were to deposit their recording sheets

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into a classroom collection box. These sheets were reviewed primarily to see if parent-child dyads were reading together as per their contract and to record the average number of minutes read/week, total number of books read/week, and average number days read/week.

Procedure

Treatments. Subjects in this study participated in one of four treatment groups: Parent Involvement with Parent Reading Feedback (group 1), Parent Involvement Only (group 2), Parent Reading Feedback Only (group 3), and Control (group 4).

Parent Involvement Treatment. Separate training sessions were held for those parents and children who were assigned to the "Paired for Successful Reading Program" (i.e., group 1 and group 2). The PR technique is one in which parents and children are encouraged to read together for approximately five to fifteen minutes on several evenings. This technique, which includes an error correction procedure, allows for both simultaneous and individual reading of high interest material (Topping, 1987).

Training in this technique was provided by the author. Three evening training sessions were held so as to maximize attendance. Parents were asked to attend these sessions with their children. A total of 21 out of 30 parents/students attended these sessions. All other parents were contacted by phone, provided with an overview of the program, and received a packet of the necessary materials. During the sessions, a general overview of the process of PR was provided. Videotapes, with a model demonstrating the technique, were also viewed. This was followed by supervised guided practice of the technique. Parents were provided with a quick reference guide describing the technique and were informed that research assistants would contact them by phone during the 15 week program to ensure that the program was implemented as prescribed. Parents and students also signed the "Paired for Successful Reading" Contract which afforded them the choice to contract for either 5, 10, or 15 minutes of reading each session. The number of parent-child dyads contracting for 5, 10, or 15 minutes were 3, 19, and 6 respectively.

Parent Reading Feedback Treatment. Parents in this condition (i.e., group 1 and 3) received graphic feedback about their students' reading progress on a biweekly basis (i.e., Weeks 3, 5, 7, 9, 11, 13, and 15). Parents received a letter which explained how to interpret the graphs that they would receive.

Training: Students. Students were trained in the use and operation of the Monitoring Basic Skills Progress computer program (see Fuchs et al., 1990, pp. 33-35 for specific procedures). Students were trained in small groups. Proper modeling of operating procedures was done by the author or by a research assistant. Training was done prior to the collection of baseline data; data were not collected until each student demonstrated successful loading and operation of the program on two consecutive sittings. On a bi-weekly basis, the author inspected the data that had been collected to ensure that subjects were following the prescribed operating procedures. If it was determined that an individual was not successfully operating the program, additional guided practice was provided by the author.

Training: Teachers. A session was held for all second and third grade teachers to provide training in the use and operation of the computer program Monitoring Basic Skills Progress: Basic Reading (Fuchs et al., 1990). Teachers were provided with a schedule indicating the days students were to work at the computer workstation. Teachers were also informed that students were to deposit their reading recording sheets and parent signed reading progress graphs into the classroom collection box.

Training: Research Assistants. Four school psychology graduate students, from a local university, served as research assistants in this study. The research assistants were trained in the administration and scoring of the following instruments: SDRT PA, SDRT PC, G-M, CBM-PP, and ERAS. Training sessions were provided by the author and included a demonstration of standardized procedures followed by guided practice.

Progress Monitoring. All subjects participating in this study had their reading progress monitored twice weekly. Subjects were trained in the operating procedures for the Monitoring Basic Skills Progress: Basic Reading computer program (Fuchs, et al., 1990). Students individually read the reading maze probe at an Apple IIe computer workstation. All necessary disks were at this station. Students loaded the program, completed the exercise, and returned to their seats. The classroom teacher was provided with a schedule indicating the days on which students were to complete the reading maze.

During the week prior to the start of the 15 week treatment period, student baseline data was collected. Three data points were collected and student baseline was determined by taking the median score of the student's performance on the maze reading probe. A reading goal was determined by the primary author and

was entered into the Basic Reading program. The following formula, as outlined by Fuchs, Fuchs, Hamlett, Walz, & Germann (1993), was used to calculate reading goals:

[Expected weekly rate of growth x Length of the program in weeks] + median baseline score

Expected weekly rates of growth can be described in terms of realistic or ambitious rates of weekly improvement. Fuchs et al. (1993) determined that a realistic rate of weekly improvement for students in grades one through six using maze measurement procedures appears to be approximately .39, while an ambitious target would be .84. The use of ambitious goals has been associated with greater growth (Fuchs, Fuchs, & Deno, 1985), therefore for the purposes of this study, an ambitious approach to setting goals was used. The following example serves to illustrate how goals were set for this study: A student earned a median baseline score of 20 correct replacements on the reading maze probe. Given that the intervention was implemented for 15 weeks, and an ambitious rate of weekly improvement was .84, then:

$$[.84 \times 15] + 20 = 32.6$$

At the end of the 15 week intervention period, it was expected that this student would correctly replace approximately 33 words on the reading maze computer probe. The primary author inspected student data bi-weekly, at which time a decision was made as to whether the student's goal was appropriate or inappropriate. This decision was facilitated by "decision rules" that were automatically employed by the Basic Reading computer program. Any changes in students' goals were noted in the students' personal data file. Changes in students' goals were automatically reflected on the graphs that parents received.

Procedural Integrity: Parents. An average of two phone calls, made by research assistants using a standard form of inquiry, were made to parents to ensure that the treatments were implemented correctly (i.e., groups 1 and 2) and interpreted accurately (i.e., groups 1 and 3). The parents and students assigned to the "Paired for Successful Reading Program" (i.e., groups 1 and 2), were asked whether the technique was being implemented and if they were recording the necessary information. The anecdotal results from these phone inquiries are mixed: Parents indicated that they were indeed reading to their children, but were not necessarily according to the procedures delineated in the PR reading program. For example, parental survey responses to the question "How would you rate your faithfulness in implementing the program each week?", resulted in an

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overall median rating of 3 (where "1" represented unfaithful and "5" as extremely faithful; 20% of the parents did not return the survey). Furthermore, the average number Reading Recording Charts collected throughout the 15 week reading program for participants in groups 1 and 2 were 8.6 and 6.87 of 15 charts respectively. There were no significant differences between the mean number of Reading Recording Charts turned in by second and third grade students [$F(1,28) = 0.523$, $p<.476$].

Parents in groups 1 and 3 were called to see if they understood how to interpret the reading progress graphs that they received biweekly. If it was determined during the course of the phone conversation that a parent did not understand how to interpret the progress graph, a research assistant explained how to interpret the graph. Parental responses to the question "How would you rate your understanding of the graph?", resulted in an overall median rating of 4 (where "1" represented little understanding and "5" as full understanding; 22.6% of the parents did not return the survey). Parents' perception of the value of the graphic display of progress they received was assessed via the question "How would you rate the usefulness of the information that the graph provided?". Parental responses resulted in an overall median response of 4 (where "1" represented not useful and "5" as highly useful).

Procedural Integrity: Students. To determine whether or not the treatments were implemented at home, students were asked if they read at home with their parent(s) (i.e., groups 1 and 2) and if they discussed and understood the reading progress graphs they brought home (i.e., groups 1 and 3). The initial assessment conducted during week 4 indicated that students were generally reading at home with their parents (groups 1 and 2). In contrast, while students in groups 1 and 3 indicated that they were bringing home their reading progress graphs, only 19 of 30 students were actually discussing them with their parents at home. Only slightly more students (i.e., 24 of 30 students) actually understood what the reading progress graph depicted. At each bi-weekly distribution of the reading graphs, students were reminded to discuss the graph with their parents and encouraged to do their best reading on the computer so that their scores would increase.

Inter-scorer Agreement. Since the CBM-PP was administered and scored by research assistants, it was necessary to ascertain whether the research assistants followed standardized procedures. This was accomplished in two ways. First, the author, using a procedural checklist, observed a random sample of

individual data collectors as they administered the CBM-PP. Observational data indicated that the research assistants correctly administered the reading probes. Second, 47% of the CBM-PP testing sessions were tape recorded and were re-scored by a trained independent observer. The percentage of inter-rater agreement was determined by dividing the number of agreements, by the number of agreements plus disagreements, multiplied by 100 (House, House, & Campbell, 1981). The resulting inter-rater agreement for this study was 99%.

Results

The pretest and posttest means and standard deviations for each of the dependent measures are presented in Table 1. The results of a 2 (Parent Involvement) x 2 (Parent Feedback) independent groups analyses of variance demonstrated that the treatment groups were not significantly different on any of the measures at pretest (see Table 2). Additional one-way analyses of variance (second vs. third grade) on the pretest measures revealed no apparent effect for grade with the only exception being in the number of median errors made on the CBM-PP; second graders made more errors than did third graders [F (1,59) = 6.50, $p < .01$] (see Table 3).

At posttest, two-way analyses of covariance, with pretest scores used as covariates, showed that the observed differences between groups at posttest were not significant (see Table 4). Actual reading gains on the SDRT, however, may have been precluded by an apparent ceiling effect. Therefore additional assessment using the Reading Comprehension subtest of the Gates-MacGinitie Reading Test was completed (means and standard deviations are also presented in Table 1). While the results of a 2 (Parent Involvement) x 2 (Parent Feedback) analysis of covariance, with pretest scores on the CBM-PP and SDRT used as covariates, indicate that the main effects were not significant, the interaction between Parent Involvement and Parent Feedback was significant [F (1,53) = 6.51, $p < .01$] (see Table 4); students who did not receive feedback scored higher than those who did. This pattern of nonsignificant main effects and a significant interaction resulted when the CBM-PP was used as a covariate and when both the CBM-PP and SDRT were used as covariates. However, multiple post hoc comparisons on the adjusted means, using Dunnett's test, revealed that none of the treatment groups differed significantly on the G-M at $p < .05$.

The effect of grade on the posttest measures was also examined. The only significant result was from a one-way analysis of covariance, with pretest CBM-PP and SDRT scores used as a covariates, which indicated that third grade students had higher oral reading rates on the CBM-PP than second graders [F (1,55) = 14.86, p <.01] (see Table 5).

The means and standard deviations of student reading attitudes, assessed using the Elementary Reading Attitude Survey (ERAS), are presented in Table 6. Results of two-way analyses of covariance, with pretest ERAS scores used as a covariate, revealed no significant pretest and posttest group differences on this measure, suggesting that elementary students' reading attitudes were stable over this 15-week intervention period (see Table 7).

Parent reading attitudes were also surveyed at posttest. The maximum score possible on this measure was 65, where higher scores represented increasingly positive attitudes toward reading. The overall scores obtained from parents ranged from 45-62, suggesting that parents generally had positive values related to the importance of reading (means and standard deviations are presented in Table 8). Results from a two-way analysis of variance indicated that the groups did not differ on this measure (see Table 9).

The nature of the home-literacy environment of participants was also examined (means and standard deviations are also presented in Table 8). Results from a two-way analysis of variance revealed that home-literacy environments were consistent across treatment groups, suggesting that the types of literacy material available and literacy activities occurring within the subjects' homes were comparable (see Table 9).

Discussion

The purpose of this research was to determine the influence of parent involvement and parent feedback on the reading progress of second and third grade students. The results indicate that neither Parent Involvement nor Parent Reading Feedback significantly influenced student reading achievement as measured by both curriculum-based and standardized reading achievement measures.

While the research on parent involvement in the reading process is generally positive, the roles that parents play often vary (Epstein, 1987a, 1987b, 1992; Vukelich, 1984). Results of other studies have indicated that students participating in structured parent involvement programs score higher on tests of reading

achievement (Duvall, Delquadri, Elliot, & Hall, 1992; Leach & Siddall, 1990, Siders & Sledjeski, 1978; Thurston & Dasta, 1990). In contrast, students in this study who participated in the "Paired for Successful Reading Program" did not score significantly higher at posttest on the reading achievement measures when compared to students who did not participate in this at-home reading program.

While feedback to parents did not have a meaningful impact on achievement, it may have provided parents with more insight as to how their student was progressing. Parents of students who were progressing as expected made positive and supportive comments about how their students were doing on the progress graphs that they returned to school. In contrast, parents of students who were not progressing in a positive manner did one of several things. Some disregarded the graphic information that was provided and for other parents further dialogue ensued with teachers. Some parents of students who were not progressing as was predicted wanted to know what they could do, whether it was in school or at home, to help their child get on track.

While parent involvement and feedback factors alone did not affect reading achievement, the interaction between these two variables yielded significant results on the reading comprehension subtest of the Gates-MacGinitie that was given at posttest only. Interpretation of this interaction, however, is limited given that it manifested on only one measure of reading achievement and the results are not consistent with expectations. The of nature of this interaction is counter to theory and its occurrence is most likely attributable to chance.

Possible Explanations for Present Findings

The present findings are in direct contrast to the expectations of the researcher. In addition to the small sample size, issues related to parent training and treatment integrity are considered as possible explanations for the current results.

With regard to parent training, the Paired Reading program was designed to train parents in a brief supportive reading technique to use at home. The treatment effect may have been compromised due to the limited nature of the training program (i.e., approximately 75 minutes). Parents, however, indicated at the end of the training sessions that they believed they had a good understanding about the process of paired reading and only one parent requested additional support or information about the technique.

Parents who received progress feedback may have needed more information about the nature of the graphs they were getting. It is possible that the letter distributed at the start of the program did not provide a meaningful explanation to the parents about the reading progress graphs that they received. Perhaps a general informational meeting would be more useful in helping parents understand the computer graphs. While the phone contacts did address whether parents understood the progress graph, thorough understanding of how to interpret the graphs may not have been attained. Student performance on these graphs varied as well, which may have made actual reading progress harder to assess.

When considering the treatment integrity of this study, results indicate that only half of the parents read with their children on a regular basis; the program was not implemented as was intended. Other research suggests that even when parents implement reading tutoring programs as prescribed, meaningful effects on reading achievement are not always observed (Hannon, 1987; Powell-Smith, 1993). Additionally, when at-home tutoring programs are complex in nature, parents have difficulty complying with the design of the program (Mehran & White, 1988). Yet Paired Reading is considered to be a fairly simplistic reading technique.

Comments from reading recording sheets and phone inquiries provided some interesting anecdotal information about why the Paired Reading program was not implemented as prescribed. One mother indicated that she liked the structure that the program provided, yet had difficulty complying with the program due to other obligations. Another parent believed that her son gained confidence as a result of participating in the program. Thus for readers who are struggling with the reading process, the supportive nature of this technique may foster more confidence about reading. In contrast, comments from parents of good readers suggested that these students generally preferred to read independently. Thus considerations of parental beliefs about student abilities invariably affect whether treatments are implemented as intended. Research assessing parental attitudes suggests that parents have more positive attitudes after having participated in parent involvement reading programs (Rustin, 1989; Robson & Whitley, 1989). The results of this study, however, do not support that contention. While parent attitudes were generally positive, parents who participated in the parent involvement treatment conditions did not have more positive attitudes as compared to

parents who did not participate in the at-home reading program.

A final possible explanation that must be considered is that the Paired for Successful Reading Program may not be a powerful enough technique to use to enhance the reading achievement of second and third grade students. Improved reading progress may have been precluded due to the brief duration of this intervention (i.e., 15 weeks). Yet Topping's (1987) reviews of Paired Reading projects attest to the benefits of this supportive, structured technique even with programs that spanned fewer weeks. The nature of this particular sample of parents suggests that there was a pre-existing moderately high level of parent involvement. This is supported by the teachers' perceptions of the parent involvement of the students who participated in this study. For example, teachers' reports suggest that these parents were already active participants in their children's education both in general (e.g., attend school-related events, communicate with school) and in reading-related activities at home. The nature of the Paired Reading program may have in fact resembled what these parents do naturally with their children and may therefore account for the lack of significant differences among treatment groups.

Concluding Remarks

Although there was no effect for either parent involvement or objective feedback on students' reading achievement, the need to get parents involved in the reading process is still paramount. Teachers want and need parents to become involved (Becker & Epstein, 1982). It is imperative that schools and parents continue to collaborate so that the educational potential of our children can be realized. Yet parent involvement reading programs for second and third graders may be most effective if directed toward students who are considered at-risk for reading difficulties. This study indicated that the at-home parent involvement reading program used in this study did not influence student reading achievement. Parent Involvement programs and feedback to parents may be most effective if they are individually designed not only to meet the needs of the student, but the needs of the parents as well.

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Table 1

Means and Standard Deviations of Curriculum-Based Measurement Probes (CBM), Stanford Diagnostic Reading Test Composite (SDRT), and Gates-MacGinitie Reading Test (G-M) for each Treatment Group at Pretest and Posttest.

	CBM				SDRT				G-M[b]			
	Pretest		Posttest		Pretest		Posttest		Pretest		Posttest	
Group	M	SD	M	SD	M	SD	M	SD	M	SD	M (Adj. M)[c]	SD
PI/PF[a]	54.27	28.84	81.07	34.73	56.60	6.89	58.00	4.95	--	--	37.14 (38.05)	8.68
PI only[a]	74.87	44.99	99.87	47.41	59.70	4.17	61.13	2.80	--	--	39.00 (36.08)	7.35
PF only[a]	53.31	37.88	78.63	45.12	56.25	7.75	57.19	8.14	--	--	34.13 (36.45)	9.76
Control	47.73	26.98	73.00	35.13	57.73	5.20	58.04	5.13	--	--	39.00 (39.21)	5.87

Note. [a]PI/PF = Parent Involvement & Parent Feedback; PI only = Parent Involvement only; PF only = Parent Feedback only.

[b]Two subjects were not assessed due to scheduling conflicts. [c]Values enclosed in parentheses represent adjusted means.

Table 2

Analysis of Variance of Pretest Measures.

	CBM-PP		SDRT	
Source	df	F	df	F
Parent Involvement (A)	1	2.39	1	.53
Feedback (B)	1	.68	1	2.09
A x B	1	2.08	1	.26
Residual	57	(1257.88)	57	(38.39)
Total	60		60	

Note. Values enclosed in parentheses represent mean square errors.

Table 3

Analysis of Variance of the Pretest Median Number of Errors Made on the CBM-PP for Second versus Third Graders.

Source	df	F
Grade	1	6.50*
Residual	59	(4.65)
Total	60	

Note. Values enclosed in parentheses represent mean square errors.

*$p < .01$

Table 4

Analysis of Covariance of Posttest Measures

	CBM-PP		SDRT		G-M [a]	
Source	df	F	df	F	df	F
Covariate 1[b]	1	16.61*	1	32.13*	1	28.61*
Covariate 2 [b]	1	159.60*	1	.185	1	10.38*
Parent Involvement (A)	1	.00	1	1.00	1	.16
Feedback (B)	1	.64	1	.28	1	.56
A x B	1	.10	1	.20	1	6.92*
Residual[c]	53	(207.03)	53	(15.80)	51	(23.26)
Total	58		58		56	

Note. [a]Two subjects were not assessed due to scheduling conflicts. [b]Covariate 1 = SDRT, Covariate 2 = CBM-PP. [c]Values enclosed in parentheses represent mean square errors.

*$p < .01$.

Table 5

Analysis of Covariance of Words Read Correctly on the Posttest CBM-PP for Second versus Third Graders

Source	df	F
Covariate 1[a]	1	29.331*
Covariate 2[a]	1	203.54*
Grade	1	14.86*
Residual[b]	55	(159.26)
Total	58	

Note. [a]Covariate 1 = SDRT; Covariate 2 = CBM-PP.

[b]Value enclosed in parentheses represents mean square errors.

*$p < .00$.

Table 6

Means and Standard Deviations of Students' Responses to the Elementary Reading Attitude Survey (ERAS).

	Pretest		Posttest	
Group	M	SD	M	SD
PI/PF[a]	60.93	8.80	59.47	9.78
PI only[a]	56.73	10.10	59.73	8.58
PF only[a]	57.69	8.60	58.69	8.07
Control	55.93	12.88	59.15	11.88

Note. [a]PI/PF = Parent Involvement & Parent Feedback;

PI only = Parent Involvement only; PF only = Parent Feedback only.

Table 7

Analysis of Covariance of Students' Responses to the Elementary Reading Attitude Survey (ERAS)

	Pretest		Posttest	
Source	df	F	df	F
Covariate[a]	--	--	1	23.95*
Parent Involvement (A)	1	.60	1	.04
Feedback (B)	1	1.30	1	.86
A x B	1	.69	1	.05
Residual[b]	57	(104.25)	54	(64.81)
Total	60		58	

Note. [a]Covariate = Pretest ERAS. [b]Values enclosed in parentheses represent mean square errors.

*$p < .01$.

Table 8

Means and Standard Deviations of Parents' Responses to the Home Literacy Environment Survey (HLES) and Parent Reading Attitude Survey for each Treatment Group.

		HLES		Reading Attitude	
		Posttest		Posttest	
Group	N	M	SD	M	SD
PI/PF[a]	11	24.27	4.31	55.27	3.44
PI only[a]	13	22.62	2.69	52.92	4.73
PF only[a]	13	23.92	3.73	53.92	4.44
Control	13	24.00	5.90	54.15	4.99

Note. [a]PI/PF = Parent Involvement & Parent Feedback; PI only = Parent Involvement only; PF only = Parent Feedback only.

Table 9

Analysis of Variance of Parents' Responses to the Home Literacy Environment Survey (HLES) and Parent Reading Attitude Survey for each Treatment Group.

	HLES		Reading Attitude	
Source	df	F	df	F
Parent Involvement (A)	1	.18	1	.00
Feedback (B)	1	.42	1	.70
A x B	1	.50	1	1.03
Residual	46	(18.66)	46	(20.08)
Total	49		49	

Note. Values enclosed in parentheses represent mean square errors.